

BepiColombo

Projekt-Status und Möglichkeiten der Zusammenarbeit

Name: M. Schelkle

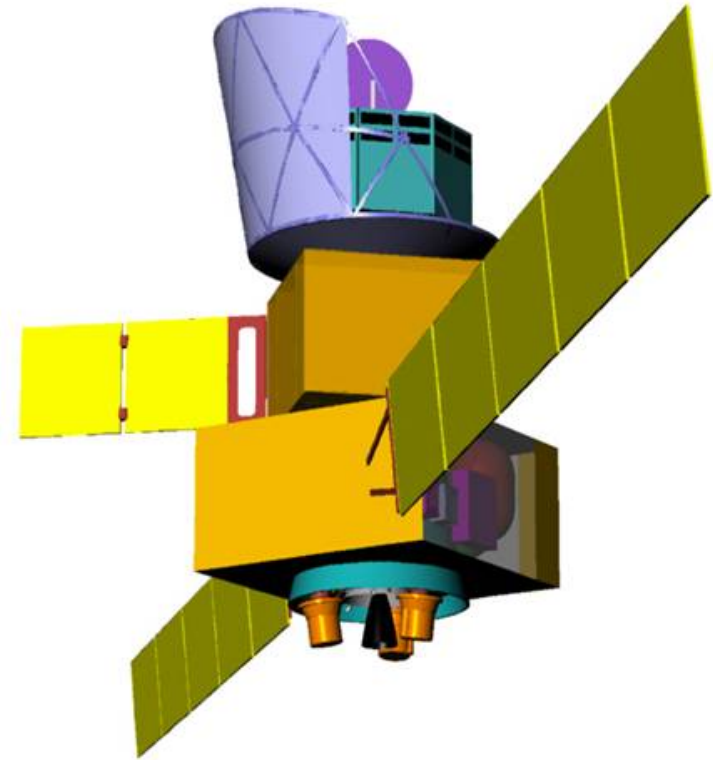
DLR - Raumfahrt-Industrietage in Friedrichshafen
13./14. Mai 2009

All the space you need



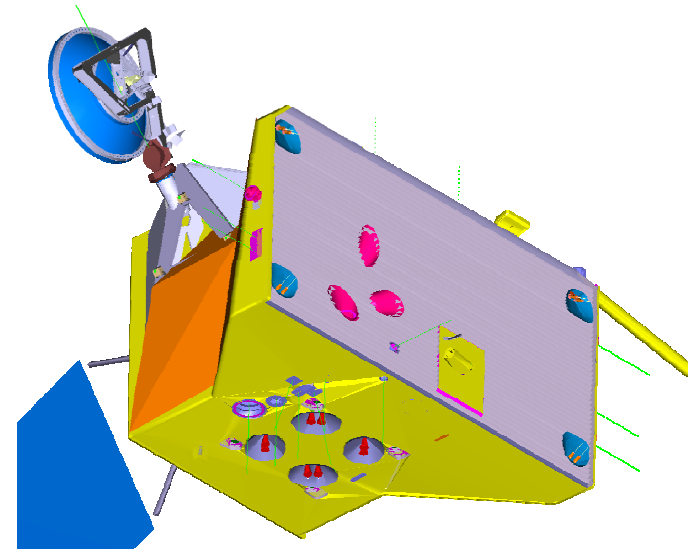
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- European Corner-Stone mission to Planet Mercury
- Spacecraft
 - 3900 kg, average 950W (Mercury orbit)
 - Orbit: 400x1500km, inclination: 90°
 - Lifetime 8 years
- Launch: August 2014 with Ariane 5 ECA
- Fly-bys: 1x Earth, 2x Venus, 2x Mercury
- Arrival at Mercury in May 2020
- Scientific mission duration: 1 year (possible 1 year extension)



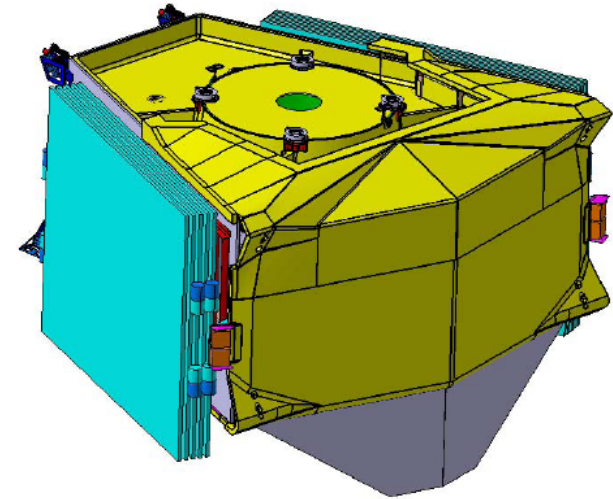
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- MPO characterized by:
 - ESA mission core module carrying 11 scientific instruments
 - 3-panel MPO solar array kept away from the solar illumination
 - MPO thermal enclosure shaped to suit MTM radiator performance
 - MGA and HGA accommodation and articulations tuned to provide needed coverage
 - Finned radiator for protection from planet. Multiple radiator segments for specific temperature needs
 - High temperature MLI shaped to suit MTM TCS



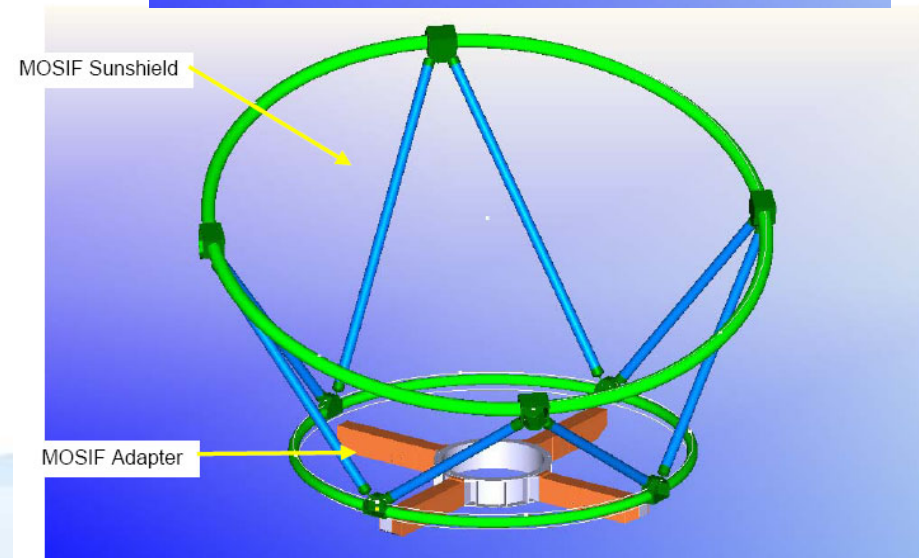
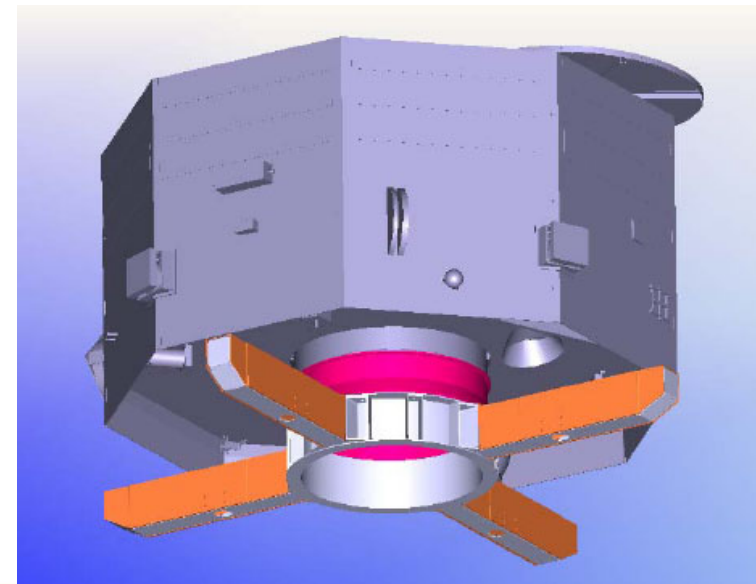
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- MTM is characterized by:
 - Large, 5-panel solar array wings, covering radiators at launch
 - Radiators angled from sun
 - 4 SEP thrusters within launcher interface ring are protected from solar illumination during critical Cruise phases
 - High-temperature MLI on outer surface
 - 2 PPUs (dissipation ≤ 500 W)
 - PCDU (dissipation ≤ 900 W)
 - Extensive heatpipe network to remove and distribute heat but still very large radiators
 - Plain surface radiators angled away from sun

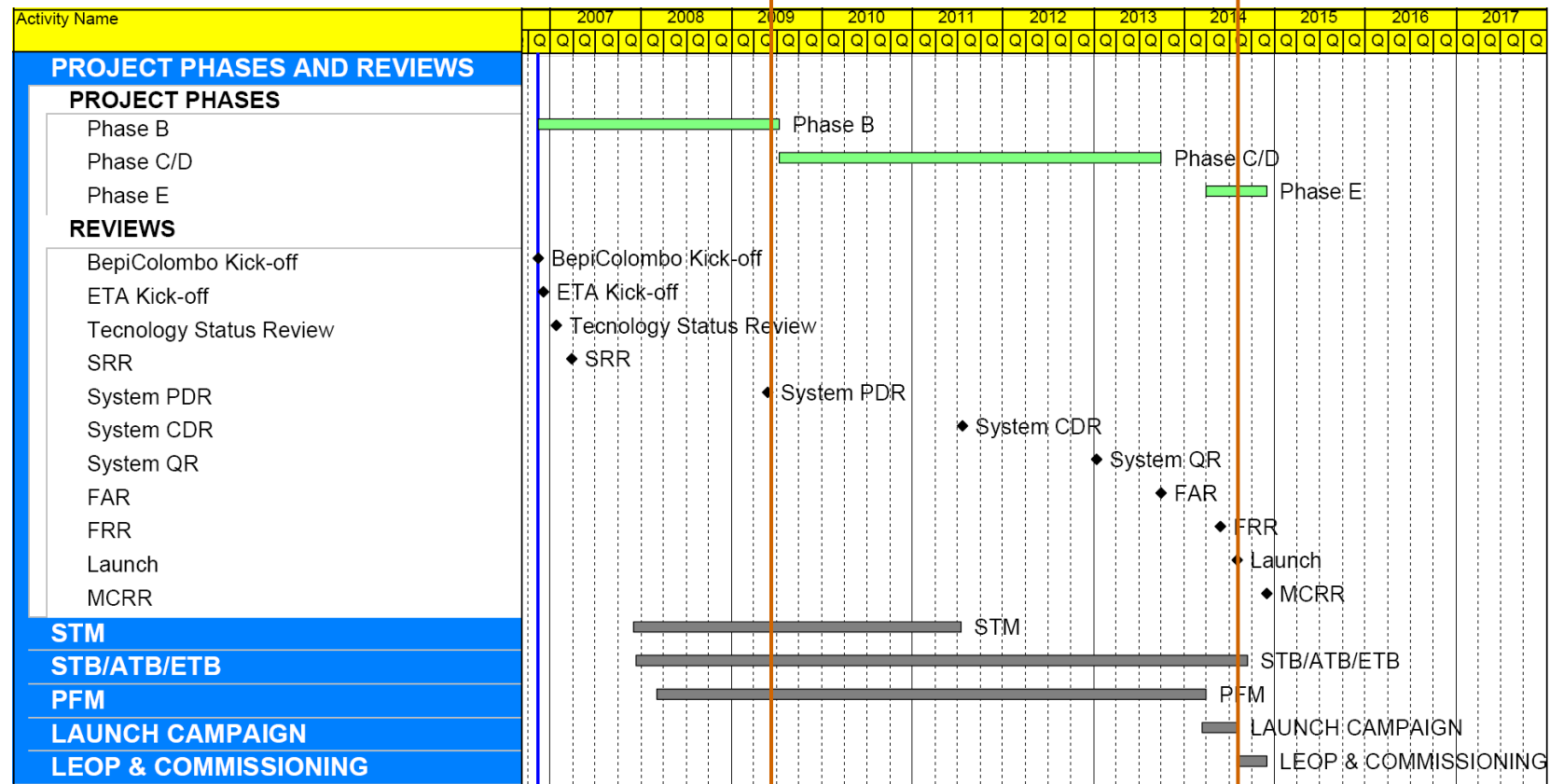


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- MOSIF is characterized by:
 - Adapter between MPO and MMO, translating between the ca. 900 mm square 4-point interface on the MPO to the Ø 600 mm of the MMO interface
 - Sunshield structure supports thin high-temperature MLI blanket to protect MMO
 - Cold plate (not shown) in centre of adapter removes heat from MMO battery, heat rejected by heatpipe linked radiator



BepiColombo – S/C Development Schedule

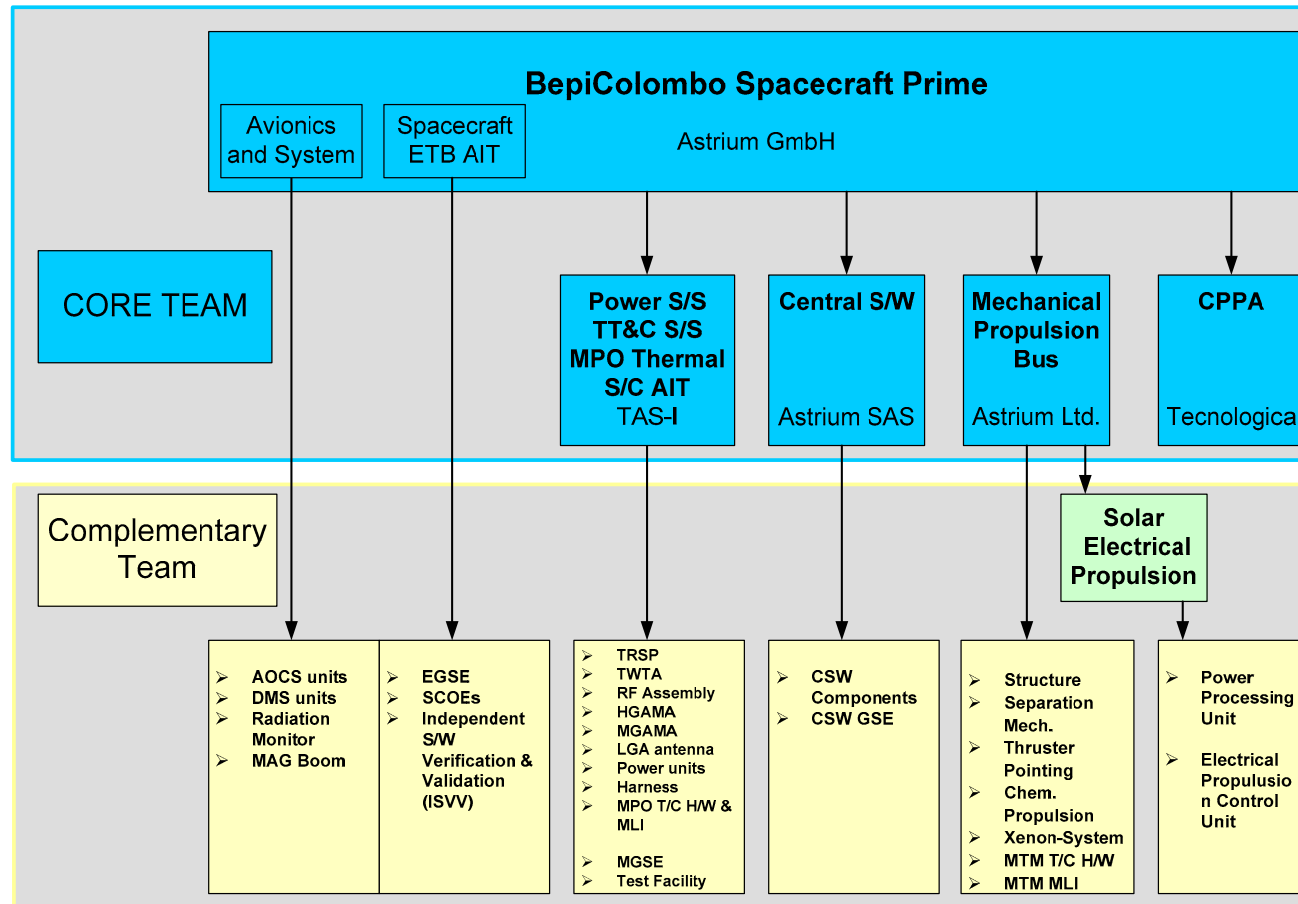


PDR colocation cw19 2009

Launch 31.7.2014

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BepiColombo – Industrial Team



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BepiColombo – Procurement Status

		Core Team				
	Items	ASD	ASF	ASU	ALS	Total
Complementary Team	Subcontracted	8		6	9	23
	Supplier selected and to be negotiated	4		7	5	16
	Eurostock			7		7
	Under evaluation	1		3	1	5
	Proposal preparation by bidders	1		1	4	6
	Update of RfP to be finalised	1				1
	ITTs to be issued	2	1		2	5
	Subtotal	17	1	24	21	63

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BepiColombo – ITTs to be issued

	Procurement Item	Issuing Company	Planned date
1	Harness	ALS	June 09
2	Mechanical/Thermal Test Dummies	ALS	June 09
3	Software Coding & Implementation Support	ASF	August 09
4	Onboard Control Procedures	ASD	April 10
5	RF Suitcase	ASD	July 12

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BepiColombo – Participation of German companies

- | | |
|------------------------------------|-------------------------------------|
| ■ Afflerbach GmbH | HGA ARA Main reflector blank |
| ■ AZUR SPACE Solar Power GmbH | Solar cells |
| ■ Carl Zeiss Optronics GmbH | BELA Laser Qualification |
| ■ ECM Ingenieurunternehmen | HTHGA CeSiC Reflector |
| ■ Fraunhofer INT | MPO Radiator coating |
| ■ Fraunhofer IST | ARA surface treatment |
| ■ ItN Nanovation AG | Thermal Coating |
| ■ Konzept Informationssysteme GmbH | SW PA Support |
| ■ Rugel GmbH | ARA MGSE |
| ■ SCIMUS | Engineering and design MPO Radiator |
| ■ SpaceTech GmbH | Engineering Consultancy |
| ■ Tesat | X-band & Ka-band TWTA |
| ■ Timetech | Subco to TT&C SCOE |
| ■ Vectronic Aerospace | Science Payload Simulator |
| ■ Xperion AEROSPACE GmbH | Solar Array substrates |
| ■ Ziegler GmbH | ARA Subreflector brackets |

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Ansprechpartner

■ Projektleiter

- Dr. Markus Schelkle; 07545/84854;
Markus.Schelkle@astrium.eads.net

■ Systemingenieur

- Rudi Kerner; 07545/84131;
Rudi.Kerner@astrium.eads.net

■ Procurement

- Friedhelm Reuss; 07545/89978;
Friedhelm.Reuss@astrium.eads.net